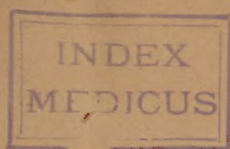


VAN LENNEP (W.B.)



Compliments of the Author.

A NEW SURGICAL BAG.

BY

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AN operating bag, systematically arranged and yet giving room for additions and alterations to suit the demands of different operations, has always seemed to me a desideratum. This want has been met by a number of cases and bags, but they usually lack one of two important features which are necessary if they are to be generally used, *i.e.*, cheapness and adaptability for any operation. There are gynæcological, obstetric, abdominal, emergency bags, etc., but they are fitted with racks and fixtures which make it impossible to use any but the instruments and apparatus named by the designer. On the other hand, there are some very handsome bags, notably the one known as the Gerster, which, while they are more or less free from the drawbacks above named, are too expensive to be extensively used.

In view of these facts, it has occurred to me that it might be well to call the attention of the profession to a bag which I have been using for several years; one which, while inexpensive, gives me room to carry everything necessary for any operation, the contents of which can be changed to suit any branch of surgical work, and one in which all the articles are either standard in the market or are easily and cheaply made (Fig. 1).

The bag is of the kind known as the "Cabinet," and is the sixteen-inch size. There is a pocket at each end; two more are sewed into one side, two straps and two buckles into the other and six loops into the cover. A plain tin pan, about 12 by 6½ by 3 inches (or a nest of two or three tin pans if desired) fits in the bottom, and the bag is ready to be filled.

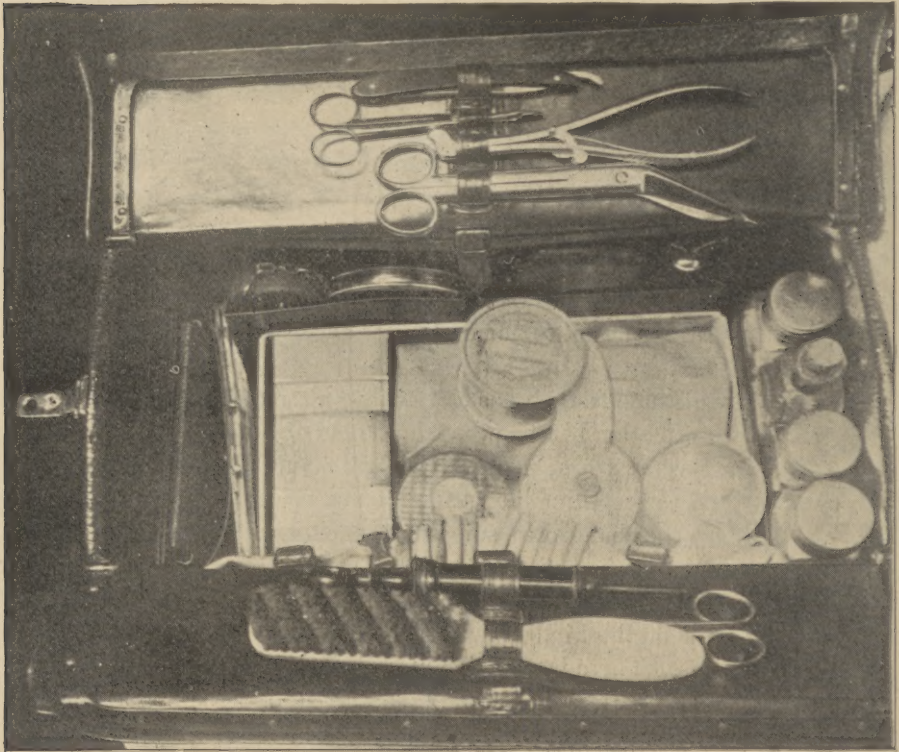
Under the straps at the side are buckled (1) a Kelly pad and (2) an irrigator, the well-known fountain syringe which holds, according to the size, from one to four quarts. A butter plate is tucked in on the other side of the pan. The needles are placed in this before an operation. Outside one end of the pan there is room for a folding, skeleton, Allis' inhaler. Stout wrapping paper and a towel are wrapped around this before using it.



The loops in the cover hold (1) a needle holder for Hagedorn and ordinary needles. (2) Vulsellum, and (3) Long, thin, dressing forceps. (4) Razor. (5) Heavy bandage scissors. (6) A large nail brush. (7) A hard-rubber syringe that will fit the trocar canulæ and answer for a sinus syringe as well as for general work.

In the pockets at the side are (1) An Esmarch band or tubing (2) A Levis mouth gag. (3) An ether dropper (Fig. 2). Dr. Northrup,

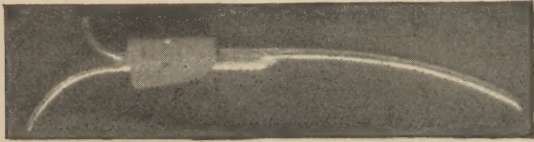
FIG .1.



anæsthetist to the Hahnemann Hospital, has recently devised this very neat and simple dropper, which pays for itself very quickly by the ether it saves. It is pushed through a cork, and will therefore fit any can or bottle. From the larger tube the ether runs in a stream, and this is used until the patient is well anæthetized ; from the other it drops out slowly, and this is used to keep up the narcosis. The latter tube answers very well too for choloroform. (4) A needle box, with compartments of different sizes, for assorted needles,

silver wire, hare lip pins, etc. (Fig. 3). (5) Hypodermic case, or the writer's hard-rubber, pocket, minor operating case, containing straight scissors; Péan artery forceps, which serve as a needle holder also; two or three small artery clips; hypodermatic syringe and needle; trocar and canula; grooved director; dissecting forceps with slide catch to serve as artery forceps; bottle containing spools of silk and catgut in alcohol; bottle of bichloride tablets; two knife handles to

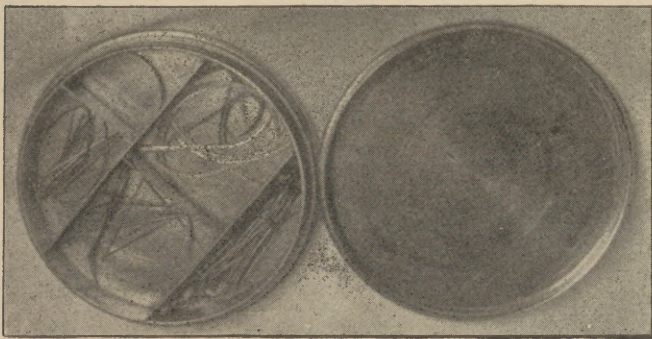
FIG. 2.



the end of one of which is attached a sharp Volkmann spoon; assorted needles; two or three probes, one arranged as a drainage-tube carrier; "Gross' instrument," with spud at one end and tenaculum at the other; perinæum needle; blades to fit the handles, *i.e.*, amputating knife, saw, scalpel, two straight bistouries and two tenotomes, blunt and sharp pointed (Fig. 4).

In the pocket at one end is a leather case, the "case tubes," which fits into a pair of photographic trays ($4\frac{1}{4}$ by $5\frac{1}{2}$ inches), and will hold five one-ounce, or ten half-ounce screw-cap tubes or bottles.

FIG. 3



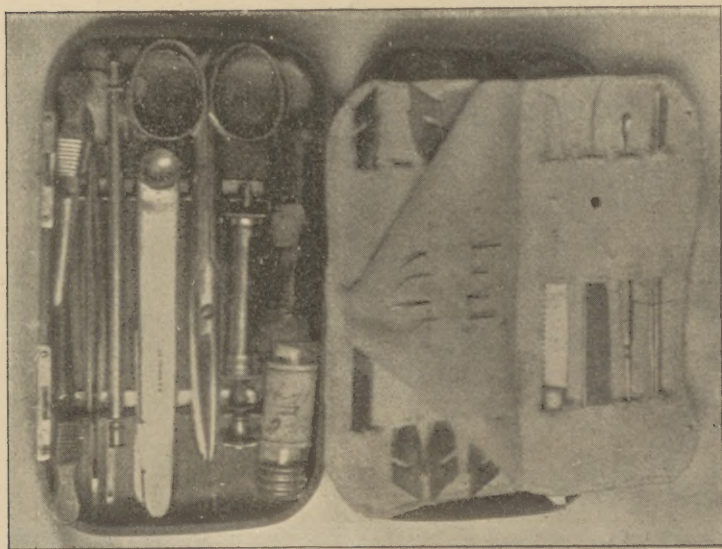
This is filled from the following list with such bottles as may be needed (Fig. 5):

One ounce: (1) A screw-cap tube containing six to eight glass spools of assorted sizes of silk on a rod in plain or bichloride alcohol.

(2) Carbolic acid ; this makes, with a quart of water, a 3 per cent. solution for the instruments. (3) Chloroform. (4) Hydrogen peroxide, etc.

Half ounce: (1) A dozen strands of kangaroo tendon, prepared with chromic acid according to the method of Lister and kept in a carbolized oil (1 to 10). It improves with age. (2) Catgut on glass spools (3 sizes) in a screw-cap tube. This is prepared and kept in the same way as the tendon, or the juniper-berry gut ordinarily sold can be substituted. For ligating small vessels, or to use when it is desired that the gut should absorb rapidly, I sometimes

FIG. 4.



carry, in the silk bottle, a spool or two of gut which has been boiled in alcohol in a water-bath. (3) Bichloride tablets. (4) Powder duster containing iodoform, aristol, or iodoform one part and boric acid seven parts. (5) Brandy. (6) Solution of hydronaphthol in alcohol and glycerine; a teaspoonful to a quart makes a 1 to 1000 solution. This I use when the water is "suspicious" and bichloride is contra-indicated, or where continuous irrigation, especially of mucous membranes, as the vagina or rectum, is to be practiced, etc.

Back of the bottles in the "case tubes" is a roomy pocket in which are carried a number of envelopes or packages of oiled paper containing such of the following articles as may be needed: (1)

Lister protective. (2) Safety pins. (3) Silk-worm gut. (4) Horse-hair for drains. (5) If preferred the strands of kangaroo tendon can be wrapped in oiled paper and put in an envelope. (6) Cocaine powders, one to fl. ʒij. makes a two per cent. solution. This enables the surgeon to make his solutions fresh every time they are needed. Watery solutions are generally used, to which two per cent. of carbolic acid is added. For mucous membranes, particularly the urethra, liquid cosmoline is the better vehicle, and a half-ounce bottle of this is substituted for such operations in the "case tubes." When freshly made, a two per cent. solution is sufficient to induce

FIG. 5.



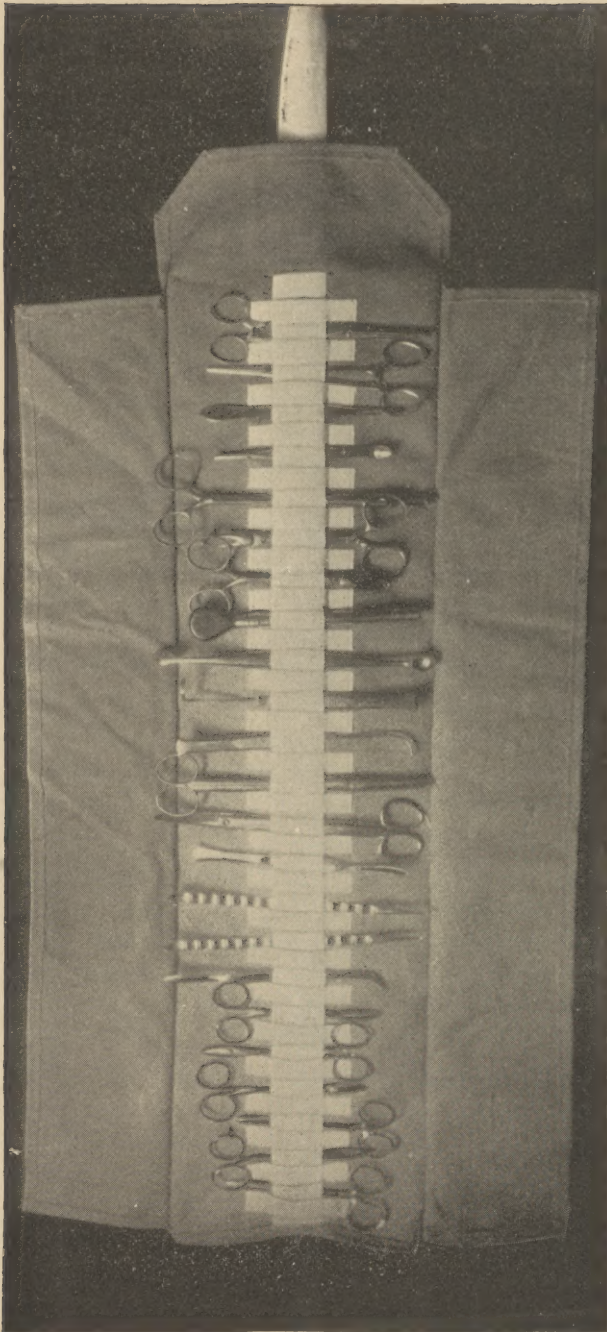
complete anæsthesia, and is not likely to produce any unpleasant symptoms. (7) "Socin powders," *i.e.*, zinc oxide ten grains, and zinc chloride one grain. To this ten drops (or less) of water are added and rubbed up into a paste which hardens rapidly and makes an ideal scab for hare-lip, scalp, hernia, or, in fact, any wounds to which it is inconvenient to apply an ordinary dressing. (8) Iodoform powders, *i.e.*, to make with an ounce of ether a saturated solution. An ounce bottle or tube from the case, after being emptied, is filled with ether and the powder added. The solution is poured on the field of operation and on the wound before applying the dressing. Iodoform decomposes if kept for any length of time in ether, etc., etc., etc.

In the pocket at the other end of the bag is room for four four-ounce bottles, wide and narrow-mouthed, and, by placing the case of tubes in the other pocket on end, a fifth can be taken. These may be varied as desired: (1) Drainage-tubes, of soft and hard rubber and decalcified bone. The hard rubber drains I have found especially convenient. There is no danger of their breaking nor will they kink. They are made in lengths varying from one-half to six inches, and are No. 18 Charrière scale in circumference. (2) "Tampons" or cotton sponges, *i.e.*, a ball of cotton wrapped in a piece of gauze. These are steamed and kept in strong antiseptic solution. They are thrown away after an operation. (3) Iodoform gauze (five to fifty per cent.). (4) Senn's intestinal bone plates, assorted sizes. (5) Decalcified bone and ivory pegs for bone operations. (6) Chloroform. (7) Hydrogen peroxide. (8) Carbolic acid. (9) Boro-glycerite. (10) Sweet or castor oil, the latter being the better lubricant as it is such a sticky oil. (11) Solution of chloride of zinc (five per cent.), etc.

Under the four bottles there is room for four one-ounce pots. These, too, can be varied to suit: (1) Vaseline, plain or medicated; (2) Zinc-oxide or any other ointment; (3) Sapo viridis. (4) Lead plates and perforated shot. (5) Brokaw's or the writer's intestinal-rings, of assorted sizes, made up. (6) Adhesive iodoform gauze, made with resin, alcohol, and glycerine, and well adapted for operations about the mouth, etc. (7) Horsley's putty, *i.e.*, one part yellow wax and four parts vaseline, to which five per cent. of carbolic acid is added, and enough white wax to make it hard when cold and a putty when warmed with the fingers. This is used to stop the bleeding from the edges of the bone in the cranium, etc.

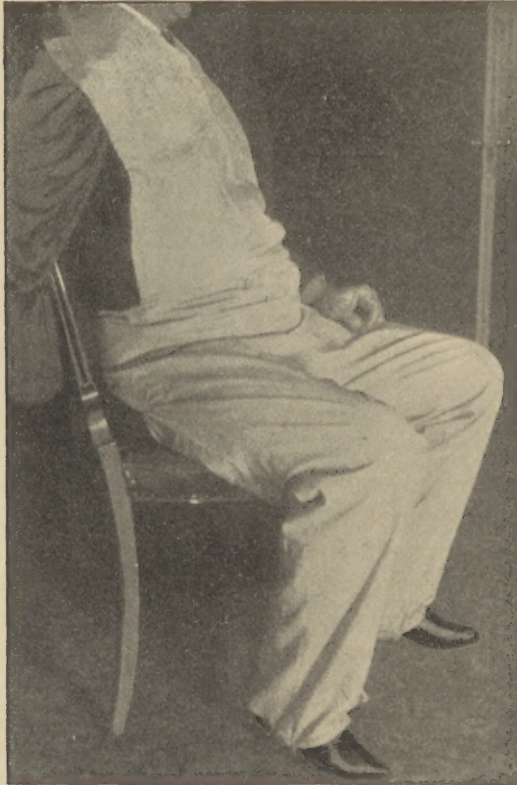
The tin pan can be variously packed to take such of the following articles as may be needed: (1) A four-ounce roll of plain or medicated, absorbent cotton, which just fits across the end. Globe antiseptic wool can be substituted or added. (2) An eight-ounce roll of Hartmann's sublimated wood-wool. (3) A can of Am Ende's sublimated or double-cyanide gauze. (4) A pound- or two half-pound cans of ether. (5) A canvas roll of instruments. I have, instead of the cases sold in the shops, which must constantly be made over as new instruments are bought, a number of canvass rolls, eight, ten and twelve inches wide. On a large card in my operating-room are written lists of the instruments necessary for the different operations. Besides bulky instruments, which will not go into the roll, and are wrapped in a clean towel, there is a roll for each class of

FIG. 6.



operations; thus, "roll-general," "roll-abdominal," "roll-bone," "roll-genito-urinary," "roll-gynæcological," etc. The rolls are washed, immersed in strong antiseptic solution, and rough-dried. The instruments are steamed in an Arnold's steam-cooker, and put in the loops of the respective rolls. Before an operation, in private practice they are immersed for some time in boiling carbolic solution (Fig. 6). (6) A spool of Mead's adhesive plaster. (7) Suitable

FIG. 7.



bandages of muslin, gauze, flannel, starch, or plaster of Paris complete the simplest bag.

Besides these, there is room for such "extras" as (1) a linen coat (sheets can be used instead). (2) Overalls of white rubber, which I find indispensable in operations about the male perinæum, female genitals, rectum, etc., *i.e.*, where the operator has to sit down. The irrigating fluid runs up the forearm to the elbow, and drips over the clothes, which no apron, sheet, or coat will protect (Fig. 7). The

coat or overalls can be strapped in with the Kelly pad and irrigator. (3) Large flat sponges, in a bag dry, or in a bottle from carbolic solution (1 to 20). (4) Battery, cauter, etc. (5) Special instruments, splints, apparatus, etc., as needed. (6) A pocket case of bottles, that can be conveniently carried by the etherizer, the "etherizer's case," containing additional restoratives, such as aromatic spirits of ammonia, glonoine, digitalis, amyl nitrite, camphor, etc.; such luxuries as collodion with iodoform, boric acid, or bichloride, tr. sapon. virid., and the overflow of short bottles from the "case-tubes." The pocket in this case will help carry some of the envelopes as well as a camel's-hair brush (for the collodion), etc.

It is convenient to keep a card in the bag with the following list of its regular contents :

POCKETS: (1) Case tubes ; trays ; bottle. (2) Four bottles ; four pots. (3) Needle box ; Esmarch band. (4) Pocket case ; ether dropper ; gag.

LOOPS: Needle holder ; nail brush ; syringe ; razor ; vulsella ; dressing forceps ; bandage scissors.

AT SIDES AND END: Kelly pad ; irrigator ; butter plate ; Allis' inhaler.

PAN: Cotton ; wool ; wood wool ; ether ; gauze ; adhesive ; bandages ; roll.

EXTRAS: Coat ; overalls ; battery ; cauter ; sponges ; etherizer's case ; special instruments, splints, apparatus, etc.

For minor operations, I use a similar smaller bag (12-inch size) which will hold the majority of the articles enumerated. In major operations, where the services of one or more assistants are available, bulky apparatus and things that will not go into the bag are carried in a long obstetric or cloth lawyer's bag.

I have found it a good plan to write out on a card, for the use of my assistants and nurses, a "drill" to familiarize them with a systematic method of preparing for an operation.

On reaching the house they are to (1) open and empty the bag and sort its contents. (2) Scrub the hands and forearms, paying particular attention to the finger-nails. (3) Prepare bichloride solution (1 to 1000) in a basin. (4) Disinfect the hands. (5) Immerse some towels in this solution.

Then one assistant gets the patient ready, scrubbing, shaving and disinfecting the field of operation, if this has not been done already, and proceeds to administer the anæsthetic. Another goes on with the preparations. (6) Place the instruments in the pan in boiling

carbolic solution (3 per cent.). (7) Make iodoform solution in ether if it is to be used. (8) Wrap the silk, catgut and tendon in a towel wrung out of bichloride solution. (9) Select the necessary needles, put them in the butter plate and cover them with the oil from the catgut bottle. (10) Put the tampons in a basin of bichloride solution (1 to 2000) and have an extra basin to wash them in. For the large sponges (used in abdominal operations), boiled or distilled water or hydronaphthol solution is to be substituted. (11) Place the dressings and disinfected dressing scissors in a clean basin covered with a disinfected towel in the order in which they will be needed. (12) Inflate and disinfect the Kelly pad. (13) Fill and hang up the irrigator, packing a bunch of cotton loosely into its mouth. (14) Pour some of the carbolic solution from the instrument pan into a photographic tray, adding boiling or boiled water to the former. This saves the hands from the action of carbolic acid. (15) Fill the other photographic tray with bichloride solution and put the protective, safety pins, silk-worm gut, horse hair, drains, etc., into the trays. (16) Bring in and arrange the patient, adjusting blankets, rubber cloths, disinfected towels (as dry as possible), Kelly pad, etc. Final scrubbing and disinfection of field of operation if necessary. (17) Prepare basin for the hands (bichloride 1 to 2000.) (18) Final scrub and disinfection of the hands.

N.B. No person but the operator and one assistant can touch the wound or anything that is to come in contact with it, unless ordered to do so and duly prepared.

With a little practice at home, these preparations can be made quietly, thoroughly and very quickly; if the preparations at the house have been carried out with a like system the operator can get along successfully, in private practice, without the luxury of a well-appointed operating-room or amphitheatre. He can also control every detail, that absolute essential to aseptic success. Add to these a careful etherizer, a well-trained assistant and an intelligent nurse, or the first and the last only, and some of the most difficult problems of every-day surgery are practically solved.

